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IN THE

# Supreme Court of the United States

F. HOFFMAN-LAROCHE, LTD., ET AL.,

*Petitioners*,

*v.*

EMPAGRAN S.A., ET AL.,

*Respondents*.

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE DISTRICT OF COLUMBIA CIRCUIT

## BRIEF *AMICI CURIAE* OF PROFESSORS DARREN BUSH, JOHN M. CONNOR, JOHN J. FLYNN, SHUBHA GHOSH, WARREN GRIMES, JOSEPH E. HARRINGTON, JR., NORMAN HAWKER, ROBERT LANDE, WILLIAM G. SHEPHERD AND STEVEN SEMERARO IN SUPPORT OF RESPONDENTS


STEVEN O. SIDENER
GOLD BENNETT CERA & SIDENER LLP
595 Market Street, Suite 2300
San Francisco, CA 94105
(415) 777-2230

PETER J. RUBIN
*Counsel of Record*
Georgetown Univ. Law Center
600 New Jersey Ave., NW
Washington, DC 20001
(202) 662-9388

*Counsel for Amici Curiae*



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## TABLE OF CONTENTS

Page

TABLE OF CONTENTS ..... i

TABLE OF AUTHORITIES ..... ii

INTERESTS OF *AMICI CURIAE* ..... 1

INTRODUCTION ..... 2

ARGUMENT ..... 4

1. THE VITAMINS CARTEL, 1990-1999 ..... 4

2. AFFECTED SALES OF THE VITAMINS CARTEL ..... 9

3. ECONOMIC INJURIES CAUSED BY THE VITAMINS CARTEL ..... 12

4. CORPORATE CARTEL SANCTIONS ..... 15

5. THE VITAMINS CARTEL'S SANCTIONS ..... 19

6. THE VITAMINS CARTEL IS NOT ATYPICAL ..... 21

7. INTERNATIONAL CARTEL RECIDIVISM ..... 22

8. DETERRING INTERNATIONAL CARTELS ..... 25

PRINCIPAL CONCLUSIONS ..... 29

## TABLE OF AUTHORITIES

**PAGE**

### CASES

Commission Case COMP/E-1/37.512 – Vitamins, Commission Decision of Nov. 1, 2001, reprinted in L-6 *Official Journal of the European Communities* 1 (10.1.2003) ..... 4, 6, 11, 13
*In re: Vitamins Antitrust Litigation*, Misc. No. 99-197 (D.D.C.) ..... 20
*United States v. Andreas,* No. 96 CR 762 (N.D. Ill.) ... 7, 9, 23

### STATUTES AND GUIDELINES

Clayton Act, 15 U.S.C §15. ..... 17
Sherman Act, 15 U.S.C §1, *et. seq*. ..... 3, 19
U.S. Sentencing Guidelines 2R1.1(d) ..... 16
U.S. Sentencing Guidelines 8C2.5 ..... 16
U.S. Sentencing Guidelines 8C2.6 ..... 16

### OTHER AUTHORITIES

"4 Companies Found Liable In Price Fixing Of Vitamin B4," New York Times, June 15, 2003 ..... 14
"Press Conference with Attorney General Janet Reno and Joel Klein, Assistant Attorney General, Antitrust Division," Federal News Service, May 20, 1999 ..... 12
"Ryan Announces Historic $255 Million Antitrust Settlements Against International Vitamin Cartel," PR Newswire, October 10, 2000 ..... 18
"US Slaps Two Big European Companies with Huge Fines in Vitamin Case," Agence France Press, May 20, 1999 .. 10
Clarke and Evenett, "The Deterrent Effects of National Anti-Cartel laws: Evidence from the International Vitamins Cartel," AEI-Brookings Joint Center Working Paper 02-13 ..... 14



Connor and Lande, "Price-Fixing Overcharges: Legal and Economic Evidence, " Staff Paper, Research in Agricultural and Applied Economics (forthcoming 2004) ..... 12-13, 14
Connor, "Global Cartels Redux: The Amino Acid Lysine Antitrust Litigation" in Kwoka and White, eds., The Antitrust Revolution (4th ed. 2004). ..... 13
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Connor, Global Price Fixing: Our Customers are the Enemy (2001) ..... *passim*
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Evenett, Levenstein, and Suslow, "International Cartel Enforcement: Lessons from the 1990s," 24 *World Economy* 1221 (2001). ..... 3
Final Report of the International Competition Policy Advisory Committee to the Attorney General (U.S. Department of Justice 2000) ..... 18
Harding and Joshua, Regulating Cartels in Europe: A Study of Legal Control of Corporate Delinquency (2003) ..... 11, 17, 21
Korea Fair Trade Commission, "The KFTC Imposes Surcharges on the International Cartel of Vitamin Companies"(Press Release April 25, 2003). ..... 6
Lande, "Are Antitrust 'Treble' Damages Really Single Damages?," 54 *Ohio State L. J.* 115 (1993) ..... 18

Organization of Economic Co-Operation and Development, Report on the Nature and Impact of Hard Core Cartels and Sanctions against Cartels Under National Competition Laws (April 9, 2002). .....3
Polinsky and Shavell, "The Economic Theory of Public Enforcement of the Law," 38 *J. Econ. Lit.* 45 (2000) ..... 26-27, 28
Posner, Antitrust Law (2d ed. 2001) .....27
Testimony of Joel I. Klein, Assistant Attorney General, Department of Justice, before the House Judiciary Committee, Federal Document Clearinghouse Congressional Testimony, April 11, 2000. .....12
United Nations Conference on Trade and Development, *World Maritime Transport 1998* (1998) .....7

**RULES**

Rule 37.6 .....1

## INTERESTS OF *AMICI CURIAE*

*Amici curiae* are a group of professors of law and economics with expertise in antitrust and the economics of competition. They submit this brief in order to bring their economic analysis of global price-fixing cartels – in terms both of effects and deterrence – before the Court:[1]

Darren Bush is Assistant Professor of Law at the University of Houston Law Center.

John M. Connor is Professor of Agricultural Economics at Purdue University.

John J. Flynn is Professor of Law and Hugh B. Brown Professor of Law Emeritus at the University of Utah.

Shubha Ghosh is Associate Professor of Law at the SUNY-Buffalo School of Law.

Warren Grimes is Professor of Law at Southwestern University School of Law.

Joseph E. Harrington, Jr. is Professor of Economics at Johns Hopkins University.

Norman Hawker is Associate Professor of Law at Western Michigan University.

Robert Lande is the Venable Professor of Law at the University of Baltimore.

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[1] *Amicus* Professor John M. Connor has written extensively on the law and economics of global price-fixing conspiracies and is among the leading scholars of the vitamins cartel that is the subject of the instant action. Professor Connor undertook initial drafting of this brief, which relies heavily upon his published scholarship. In compliance with Rule 37.6, *amici* state that no counsel for a party authored this brief in whole or in part and that no person other than *amici* or their counsel made a monetary contribution to the preparation or submission of this brief. The university affiliations of *amici* are provided for identification purposes only.

William G. Shepherd is Professor Emeritus of Economics at the University of Massachusetts, Amherst.

Steven Semeraro is Assistant Professor of Law at the Thomas Jefferson School of Law.

## INTRODUCTION

The past decade has witnessed nothing less than an explosion in the discovery of private international cartels with global price-fixing ambitions.[2] This brief presents two major economic arguments in support of the decision below. First, in the context of international price-fixing conspiracies conduct relating to "wholly foreign" purchases necessarily affects domestic commerce. This is because international cartels must prevent international geographic arbitrage in order to succeed in controlling prices in any targeted national market.

Second, this brief assembles empirical evidence that, in the absence of affirmance of the judgment below, the global aspirations of contemporary cartels offer an insuperable challenge to a core aim of the antitrust laws: Deterrence. The broad geographic harm generated by the scores of modern global price-fixing conspiracies has overwhelmed the ability of corporate antitrust sanctions to provide enough financial disincentives to discourage the formation of similar cartels in the future. These sanctions have been inadequate to deter cartel formation because the probability of being caught by one or more of the world's antitrust authorities

[2] During 2000-2003 the world's antitrust authorities have had to cope on average with 23 newly discovered international cartels per year; in the first half of the 1990s, fewer than four were discovered each year on average. Connor, "Private International Cartels: Effectiveness, Welfare, and Anticartel Enforcement,"("Private International Cartels"), Research in Agricultural and Applied Economics, Staff Paper 03-12 at 15 (2003), available at http://agecon.lib.umn.edu/cgi-bin/pdf_view.pl?paperid=11506&ftype=.pdf.



remains well below 100% and because the *expected* illegal monopoly profits made worldwide are more than sufficient to compensate would-be conspirators for their *expected* liabilities in jurisdictions with effective antitrust laws and enforcement.[3] Permitting foreign buyers who purchased the products of international cartels abroad to pursue civil antitrust damages actions in U.S. courts is necessary to produce the level of damages needed to protect the U.S. economy and its consumers from future cartel injuries. Affirmance will also enhance the probability of discovery of clandestine cartels by multiplying the number of jurisdictions in which private parties have an incentive to investigate collusive behavior.

The purpose of this brief is to validate these conclusions by drawing upon research on private international cartels published in the past six years. To do so, this brief will describe in concrete detail the salient economic features of the global vitamins cartel; calculations of the amount of injury caused for buyers in the United States and elsewhere; corporate financial sanctions imposed; the ways in which this cartel are similar to others prosecuted in the past decade; evidence of recidivism in international price fixing; and how deterrence will be significantly enhanced should wholly foreign direct buyers be permitted to go forward with this and similar suits under the Sherman Act.

[3] The OECD presents survey data from a large number of countries showing that national antitrust fines imposed on international cartels in the late 1990s failed to recover single damages. Organization of Economic Co-Operation and Development, Report on the Nature and Impact of Hard Core Cartels and Sanctions against Cartels Under National Competition Laws (April 9, 2002), Annex A available at http://www.oecd.org/dataoecd/16/20/2081831.pdf. Another study also concluded that deterrence of contemporary cartels by national antitrust authorities is insufficient. Evenett, Levenstein, and Suslow, "International Cartel Enforcement: Lessons from the 1990s," 24 *World Economy* 1221, 1244 (2001).

This research demonstrates that the international vitamin cartel generated the largest total of antitrust fines and penalties in history, which are calculated to be between $4.4 and $5.6 billion. But the cartel's monopoly profits in all areas of the world were $9 to $13 billion. Thus, the criminal and civil justice systems of the globe produced fines and damages that amounted to only about half of this cartel's illegal profits. These sanctions are much less than the amount needed to discourage future cartel formation. One of the best ways to discourage cartels is to increase the expected costs in the event the participants are caught, in order that the expected penalties exceed the expected benefits. As a practical matter, this deterrence benefit to the United States' consumers and its economy – something surely intended by Congress – is likely to be achieved only if federal law is construed to give injured foreign customers like Respondents the power to sue in the courts of the United States under American antitrust laws.

## ARGUMENT

### 1. THE VITAMINS CARTEL, 1990-1999.

Decisions about raising the prices of vitamins A and E began in discussions in Switzerland and Germany among F. Hoffmann-LaRoche, BASF, and Rhône-Poulenc (now Aventis) in late 1989.[4] Soon afterward the Japanese chemical manufacturer Eisai agreed to raise the price of

[4] Information about the cartel is drawn from published sources, including Connor, Global Price Fixing: Our Customers are the Enemy ("Global Price Fixing") 277-337, 368-379, 405-407, 463-476 (2001), supplemented by scores of publicly available press accounts. A particularly rich source of information is the European Commission's decision of November 21, 2001. See Commission Case COMP/E-1/37.512 – Vitamins, Commission Decision of November 21, 2001 ("EC Vitamins Case"), reprinted in L-6 *Official Journal of the European Communities* 1 (10.1.2003) available at http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/l_006/l_00620030110en00010089.pdf .



vitamin E effective January 1990. It was logical for the conspirators to begin with vitamins A and E because they had the largest sales of the 16 products that would eventually be cartelized, were dominated by the four manufacturers (at least 87% of global supply), and were well protected from entry by new sellers because of the difficulty of the synthetic chemistry involved.[5] The number of cartelized products grew to eight by January 1991, and by the end of 1991 at least 20 parent-company manufacturers would be involved in a conspiracy involving 16 products.

With respect to two products, price fixing was effective for only four years, but with respect to most this was a durable conspiracy. Price fixing of vitamin H became ineffective in April 1994 after 30 months of operation, and the cartel ceased price control of vitamin C shortly thereafter because of a flood of Chinese exports induced by cartel-inflated high prices. However, with respect to many products the cartel was still effectively raising prices above non-collusive levels in February 1999 when definitive evidence of the conspiracy came into the hands of DOJ from a company seeking leniency in exchange for cooperation. With respect to one product, the cartel was active for nearly 11 years; with respect to several others, the cartel operated effectively for nearly ten years.

[5] The products ultimately involved were vitamins A, B1, B2, B3 (niacin), B4 (choline chloride), B5, B6, B9 (folic acid), B12, C, D3, and H (biotin); three carotinoids; and vitamin premixes. The U.S. Department of Justice (DOJ), Canadian Competition Bureau (CBC), and European Commission fined the defendants for violations with respect to different combinations of these 16 products. For example, only the DOJ fined firms for premixes, only the CBC for B12, and only the EC for D3; however all three entities prosecuted the makers of vitamins A, E, C, and many other vitamins.

Whether tracked in euros, U.S. dollars, or Swiss francs, market prices in the United States, Canada, and Western Europe began to rise almost immediately after higher list prices were announced by the vitamins manufacturers.[6] In the cases of some products prices peaked just before the cartel was exposed; in others they peaked years before the cartel's ability to fix prices with respect to that product dissolved. But in all cases, selling prices rose to levels greater than those observed prior to the collusive agreements and well above those observed after they broke apart. The price increases cannot be fully explained by either increases in production cost or by unexpected surges in demand. The pattern of price changes in North America and Europe are remarkably parallel. Prices in all other parts of the world were similarly affected, though the average overcharges may have varied slightly from those observed in North America or Western Europe.[7]

Besides setting list prices and rigging bids on tenders from larger customers, the vitamin makers engaged in much other conduct in order to assure the success of their conspiracy to fix prices. Global Price Fixing, supra n. 4, 305-317. They agreed on global and regional sales quotas, generally based on historical levels. They shared production and sales information to monitor their adherence to prices and market allocations. They developed plans to thwart entry by producers outside the collusive groups. They set many common terms of sale, such as discounts, delivery, and restrictions on customers' resales.

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[6] See EC Vitamins Case 86-89; Global Price Fixing 319-331.

[7] An official statement describing the price effects in South Korea, for example, which imports all its vitamin supplies, confirms the similarity in price effects. Korea Fair Trade Commission, "The KFTC Imposes Surcharges on the International Cartel of Vitamin Companies" (Press Release April 25, 2003, available at http://ftc.go.kr/data/hwp/vitaminl.doc).



The cartel was managed through three levels of managers; the lowest level had face-to-face meetings quarterly to adjust prices in several currencies. The frequency of these meetings is instructive. Although with respect to each product the cartel had impressive coordination of total industry supply and market prices, it had a limited ability to affect changes in demand and no power over currency exchange rates. With few exceptions, the markets into which the vitamins cartel sold products had floating currency exchange rates that moved daily in response to changes in macroeconomic conditions. Moreover, it is important to note that bulk vitamins were high priced, storable commodities that were usually shipped in large quantities great distances.[8] International shipping costs for vitamins in the 1990s were well under 5% of the manufacturers' price.[9] Under such conditions, if changes in

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[8] The majority of the cartel's members had most of their vitamin factories in Europe, from which they exported the majority of the output to other continents. The majority of U.S. consumption was satisfied by imports. During the affected periods, vitamin A sold for $100-$200/lb., vitamin E for $60-$90/lb., vitamin C $30-$40/lb., and most of the other vitamins in between.

[9] Europe-U.S. and Europe-Asia transportation costs for these products were less than $1/lb. These low oceanic transport rates can be inferred from data published by UNCTAD, see United Nations Conference on Trade and Development, *World Maritime Transport 1998* 71 (1998), which shows that for all commodities the ratio of transport costs to import value was 5% in 1990 and 1995; most internationally traded goods are much lower in price than organic chemicals, which is what vitamins are. Other evidence was supplied in exhibits submitted in the lysine trial *United States v. Andreas,* No. 96 CR 762 (N.D. Ill.). See Global Price Fixing 217-219. ADM spent only $0.10 to $0.13 per pound in transporting, storing, and merchandising lysine made in Illinois and shipped everywhere in the world at a time when lysine sold for merely $0.85 to $1.25 per pound. Lysine international transfer costs were thus from 8% to 15% of sales value, yet the lysine-cartel managers expressed worries about geographic arbitrage.

currency exchange rates were sharp enough, buyers would find it profitable to sell stored vitamins from countries with depreciated currencies to countries with appreciated currencies; prices in the latter areas would then fall below the cartel's preferred levels. This is called *geographic arbitrage.*

Arbitrage undermines the ability of international cartels to set prices at the most profitable level in each currency zone and could even destroy collusive arrangements. For example, during 1990-1998 the value of the U.S. dollar relative to the Deutschmark varied by as much as 41%, and during 1991 the rates changed by more than 25%. Consider what might happen if the vitamins cartel set the national prices of its vitamins only once each year. If the vitamins cartel set the price of vitamin E in Deutschmarks when this currency was weak against the dollar, a U.S. chemical wholesaler could make a quick and handsome profit by exporting the vitamin to Germany when the Deutschmark later strengthened.[10] The cartel would sell a greater amount of vitamins at a relatively low price in the United States but would lose the high priced sales in Germany to this entrepreneurial exporter. If sales diversions of this type became large enough, the total monopoly profits could decline to a level inadequate to compensate the cartel members for their legal risk. Many cartels attempt to forbid the practice of reselling by their customers. But the only

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See infra at 9. In terms of its ability to enter international trade, lysine is very much like most bulk vitamins,-a powder that must be protected from humidity.

[10] In 1991 the Deutschmark was worth as little as $0.55 and appreciated to $0.69. See http://www.oanda.com/convert/fx history. Even if transportation costs were a generous 5% of export costs, by timing its purchase and resale correctly our hypothetical U.S. wholesaler could sell at a net increase in price of 20% and make a much higher mark-up on the export transaction than it would make in the U.S. market. If the dollar strengthened against the Mark, the incentive for a reverse diversion would occur.



way cartelists can effectively prevent geographic arbitrage is to make it unprofitable by frequently resetting domestic cartel prices in all regions of the world using current exchange rates to ensure that prices remain close together.

We know from direct evidence that comparable cartels were conscious of the problem presented by geographic arbitrage. Despite the increased danger of discovery, most modern cartels have had quarterly meetings to deal with this problem. In its three years of operation, the well-documented lysine cartel had at least 23 face-to-face meetings in order to adjust local prices in various currencies whenever exchange movements got the cartel's prices out of line for maximum profitability. Global Price Fixing 203. During that cartel's first few months of operation, the price was set in U.S. dollars only. By the end of the cartel, prices were set in at least nine currencies. Id. 238. A memorandum of a meeting of the cartel in Paris in 1993 written by an executive of the Ajinomoto Co. specifically refers to the need to combat geographic arbitrage by non-cooperative wholesalers:

> With the [Deutschmark] strong against the $, presently it is 22% higher than in the U.S. If the difference between Europe and the U.S. becomes bigger, ill-reputed dealers will start working and goods will enter Europe from the U.S. and decrease the price.[11]

## 2. AFFECTED SALES OF THE VITAMINS CARTEL.

Although the vitamins cartel is not different in kind from other international cartels of the late 20th century, it was one of exceptionally large scale. The most conventional measure of a cartel's size is *affected commerce*, i.e., the sales revenues generated by the cartelized product during the

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[11] *United States v. Andreas*, No. 96 CR 762 (N.D. Ill.), Trial Exhibit 10-T (translation from Japanese).

price-fixing period.[12] The dates of effective price control by the vitamins cartel are well known. Sales in the U.S., Canadian, and EU markets are also known with a fair degree of precision.[13] Sales in other parts of the world can be estimated as a residual amount after ascertaining the world totals.

The total affected sales in the United States were once estimated to have been as low as $5 billion in public statements by DOJ officials. See "US Slaps Two Big European Companies with Huge Fines in Vitamin Case," Agence France Press, May 20, 1999 (quoting Assistant Attorney General Joel Klein). This figure appears to include only a few of the largest vitamins, whereas subsequent prosecutions make it clear that the cartel involved a wider array of vitamins and vitamin premixes. A reasonable estimate of U.S. affected sales of the full array of 16 vitamin products is approximately $7.4 billion.

Sales of the vitamins cartel in the European Economic Area[14] were released by the European

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[12] Affected sales are normally dated from the time at which the first agreement was made until the date of the cartel's last meeting. Another approach is to begin counting sales on the first date on which an agreed change in list or transaction prices were changed or became effective. In this brief we follow the more conservative second approach. Both approaches undercount sales in the months following the formal dissolution of a cartel when prices remain elevated above what they would otherwise be in the absence of unlawful collusion because of institutional lags in price cuts.

[13] Sales data for vitamin premixes are difficult to obtain, and it is not always clear that total published or asserted sales data for all vitamins include premixes. Vitamin premixes are mixtures of bulk vitamins that are tailored for the nutritional needs of various types of farm animals. The United States is the only jurisdiction in which the vitamins manufacturers were sanctioned for price fixing the market for premixes.

[14] The EEA includes the EU and a few other countries that are members of the European Free Trade Area but that have not joined



Commission in its published decision regarding the fines imposed on the conspiring manufacturers. See EC Vitamins Case at 4. The affected sales of bulk vitamins (not including premixes) in the EEA are estimated to have been US$8.3 billion. Affected sales in Canada were given in statements of the Canadian Competition Bureau to be C$700 to C$750 million (US$530 to US$570). Finally, based upon reports of global sales it is possible to estimate sales in the rest of the world (primarily Asia, Africa, and Latin America). During the price-fixing period, sales of bulk vitamins in the rest of the world were approximately $18.2 billion. Therefore, global affected commerce of bulk vitamins and premixes (the latter in the United States only), reached $34.3 billion – the largest amount of affected commerce ever to result from a global price-fixing cartel.[15]

The significance of this sales calculation lies in the geographic location of vitamins sales during the cartel's active period. The three jurisdictions with the most effective anticartel enforcement – the USA, Canada, and the EU – accounted for less than half of worldwide sales.[16] It follows that, if the rate of monopoly profits made by the cartelists was roughly the same across the globe, then the *majority* of those profits were made in jurisdictions where anticartel

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the EU; Norway is an example. These countries have agreed to allow the EC to enforce its competition laws in their national jurisdictions. Harding and Joshua, Regulating Cartels in Europe: A Study of Legal Control of Corporate Delinquency 93 (2003).

[15] The largest set of affected commerce data on post-1980 international cartels can be found in Private International Cartels. The intra-European cement cartel, which was fined by the EU in January 1992, might have been slightly larger as measured by affected commerce at least when adjusted for inflation. The cement cartel, however, was not a global cartel in the sense being used in this brief.

[16] The USA, Canada, and the EU accounted for 21%, 2%, and 25% of affected world vitamin sales, respectively. Data on file with *amicus* Connor.

enforcement is weak or nonexistent. The ability of international cartelists to garner monopoly profits in weak antitrust jurisdictions adversely affects deterrence.

## 3. ECONOMIC INJURIES CAUSED BY THE VITAMINS CARTEL.

Numerous economic analyses have been conducted by economists and parties to private suits in the United States in which calculations of the economic injuries caused by vitamins price fixing were central issues. There appears to be a substantial consensus among these individuals on the size of the vitamins cartel's price-fixing overcharges.

On May 20, 1999, the day the guilty pleas of the three largest members of the vitamins cartel were announced, Assistant Attorney General Joel Klein stated:

> The vitamin cartel is the most pervasive and harmful criminal antitrust conspiracy ever uncovered... The enormous effort that went into maintaining the conspiracy reflects the magnitude of the illegal revenues it generated... [17]

Several subsequent statements by DOJ officials echoed the assertion that the vitamins cartel was the most injurious to the U.S. economy of any international price-fixing conspiracy ever prosecuted by the United States.[18]

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[17] "Press Conference with Attorney General Janet Reno and Joel Klein, Assistant Attorney General, Antitrust Division," Federal News Service, May 20, 1999.

[18] See, *e.g.*, Testimony of Joel I. Klein, Assistant Attorney General, Department of Justice, before the House Judiciary Committee, Federal Document Clearinghouse Congressional Testimony, April 11, 2000. The only other U.S. case that is a contender for the most harmful cartel is the heavy electric power equipment conspiracy that was prosecuted in 1960-61, but this was a solely domestic cartel and its price effects were relatively small. See Connor and Lande, "Price-Fixing Overcharges: Legal and



Prosecutors for the Canadian Ministry of Justice that handled the vitamins case were quoted in the press stating that vitamins prices were 30% higher than competitive levels. Global Price Fixing 405. Similarly, the vitamins decision of the European Commission clearly concludes that the cartels caused a significant increase in EU prices of bulk vitamins. EC Vitamins Case at 69. That fact that the three governments imposed on the vitamins conspirators fines that were the highest in history speaks for itself.

Unlike DOJ's terse press releases and sentencing memoranda, the EC decision is exemplary in providing numerous details about the operations, size, and European price effects of the vitamins cartel. From graphical evidence provided on the prices of seven vitamins, it is clear that the prices in euros rose significantly compared to the years before price fixing began. Id. at 86-89. Moreover, the post-cartel prices are lower than the pre-cartel prices, a trend that suggests that costs of production during the relevant period probably fell. Therefore, applying a simple before-and-after technique to calculate price effects will in all likelihood provide estimates that understate the true overcharge. See Connor, "Global Cartels Redux: The Amino Acid Lysine Antitrust Litigation" in Kwoka and White, eds., The Antitrust Revolution 263-267. (4th ed. 2004).

The simple mean price-fixing overcharge in the EU was 29% when measured with the pre-cartel prices as the competitive benchmark and 38% when applying post-cartel prices as the benchmark (i.e., the so-called but-for price).[19]

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Economic Evidence," Staff Paper, Research in Agricultural and Applied Economics, available at http://agecon.lib.umn.edu (forthcoming 2004).

[19] These were highly concentrated markets before and during the collusive conduct. It is likely that tacit collusion marked the behavior of these industries prior to the formation of the cartels. Thus, the benchmark prices used here probably are above perfectly competitive levels. The median overcharges were 25%.

The price effects were highest for vitamin E, the largest product in terms of sales, and lowest for vitamin C, a product that was subject to stiff import competition from Chinese manufacturers after a relatively short time. See Global Price Fixing 336. If one weights the overcharges by the sales sizes of the individual products, the mean overcharge was 31% to 42%.

In a case involving choline chloride, vitamin B4, one of the smaller vitamins, Mitsui, DuCoa, Chinook, and affiliated companies were found guilty of price-fixing in a conspiracy that ended in 2003. The jury found the injury to be $49.5 million and awarded treble damages. See "4 Companies Found Liable In Price Fixing Of Vitamin B4," New York Times, June 15, 2003 at A20. This overcharge conservatively represents 38% of affected sales.

Finally, there have been a number of empirical studies of the price effects of the vitamins cartel by academic economists and economic historians. Professor Connor's estimates are on average somewhat lower than the EU price effects: allowing for some uncertainty, he concluded the weighted average is 25% to 28% of affected commerce. Global Price Fixing 336. In the United States, as in Europe, vitamin E had the highest U.S. overcharge rate and vitamin C one of the lowest. Applying the U.S. overcharge rates to global sales results in an estimated world overcharge of $7 to $8 billion. Id. Economic historians Suslow and Levenstein cited North American overcharge figures of 20% and 30% in a survey of modern cartels. Connor and Lande, supra n. 18, App. Table 2. A sophisticated econometric model of world trade in bulk vitamins also yielded conclusions about collusive price effects. See Clarke and Evenett, "The Deterrent Effects of National Anti-Cartel Laws: Evidence from the International Vitamins Cartel," AEI-Brookings Joint Center Working Paper 02-13, Table 7 at 31 (2002) available at http://www.aei-brookings.org/admin/authorpdfs/page.php?id=218. What is of special interest about this



study is that the authors are able to calculate overcharges for the 19 countries outside the EU and North America with the strictest antitrust laws separately from those countries with weak antitrust enforcement; the former had overcharges averaging 13% while the latter incurred a 33% overcharge. Therefore, it seems likely that monopoly profit rates from collusion in the rest of the world are higher than in the United States, Canada and the EU. Finally, from a cutting-edge dynamic simulation model fitted to parameters drawn from the vitamin C industry, one scholar predicted the U.S. price during fully collusive and non-collusive regimes. See de Roos, "Collusion with a Competitive Fringe: An Application to Vitamin C," 20-28 (unpublished manuscript October 2001) available at http://www.econ.yale.edu/~njd7/docs/vitc.pdf. His results are that U.S. vitamin C prices were 22% to 26% higher during the cartel period, which is quite remarkable given that this is was one of the products with respect to which the cartel was weakest and most fragile.

To summarize, the average price effects of the vitamins cartel appear to be lowest for buyers in the United States, averaging somewhere in the 20% to 35% range. Canada and Europe were higher, roughly in the 30% to 40% range. The rest of the word came closer to European levels than to U.S. levels. Applying these price effects to the affected sales mentioned in the previous section implies that global injuries were between $9 and $13 billion, of which 15% accrued in the United States, 1% in Canada, 26% in the EU, and 58% in the rest of the world.

## 4. CORPORATE CARTEL SANCTIONS.

The vitamins cartel has been the most harshly sanctioned conspiracy in antitrust history. Private International Cartels, supra n. 2, at 47-49, 52-53, 56-57, 106-111. This section focuses on corporate monetary antitrust penalties, recognizing that corporate persons may be deterred in less measurable ways and that individuals were also punished. Personal financial penalties, though small by

comparison to corporate ones, and more serious personal criminal sanctions, may add to or interact with corporate sanctions in discouraging the formation or enlargement of cartels, but they are difficult to incorporate into a unified calculus of collusive deterrence.

Sanctions that would be imposed in the absence of an affirmance in the instant case will be inadequate to deter global price-fixing cartels. The Sentencing Guidelines, for example, call for a base fine of 20% of "affected sales" when an organization is being fined for price-fixing. See USSG 2R1.1(d). These may be adjusted by a multiplier as high as 4.0 depending upon the defendant's "culpability score. Id. at 8C2.6; 8C2.5. In practice, most guilty international cartel participants earn culpability multipliers of from 1.5 to 3.5. Global Price Fixing 356-378.

Unless global conduct is held unlawful as a matter of United States law, only *U.S.* affected sales will be used in calculating the base fine. Using *global* sales to determine harm could increase the maximum liability of typical international price fixers by a multiple of three to six.

Further, in discussing the economic effects of anticartel sanctions, it is essential to distinguish theoretically available legal sanctions from those actually applied as a matter of custom and policy. Historically, the Government has also ordinarily recommended substantial downward departures in these cases even from the fine levels specified by the Guidelines.[20] Members of modern international cartels have been granted very large downward departures for minimal cooperation almost as a matter of course, driving actual fines down well below single U.S. damages in almost all cases. Global Price Fixing 356-377. In the vitamins case,

[20] *Amicus* Connor is aware of only one instance in which a defendant in a global cartel was required to pay a fine close to the maximum amount specified in the Guidelines: Mitsubishi after an adverse jury decision in the graphite electrodes case.



the second through fifth firms to plead guilty were granted average downward departures of about 80% from the Guidelines' maximum fines. Global Price Fixing 375. As a result of U.S. sentencing practices, its criminal fines amounted to less than 11% of the vitamins cartel's global monopoly profits.

The EU has quite different standards for imposing its administrative fines, which are calculated on the basis of the seriousness and duration of the violation. The European Commission (EC) is limited to imposing a maximum fine of 10% of a firm's global sales in the year prior to the Commission's action. For a single-product firm with sales only in the EU, the maximum EU fine could be a large share of the profits accruing from a fairly harmful cartel. However, most members of global cartels are highly diversified firms, and the cartelized product is a small share of the company's portfolio. For example, for the leading member of the vitamins cartel, F. Hoffmann-LaRoche, vitamins accounted for merely 8% of its total sales. For such firms, a durable high-overcharge cartel can easily generate monopoly profits well above what an EU fine could possibly disgorge. Moreover, as in the United States, generous reductions in fines are routinely granted for minimal cooperation with the EC. Actual fines imposed by the EC for the same global cartels have on average been about 20% lower than those imposed in the United States. Connor, "La Mondalisation des Délits en Col Blanc: Les Cartels Agroalimentaires des Années 1990," 277-278 *Économie rurale* 99, 119 (Septembre-Décembre 2003).

The Clayton Act appears to be unique among the world's antitrust statutes in permitting treble damages for direct purchases from effective cartels. Harding and Joshua, Regulating Cartels in Europe 236-239 In the case of the vitamins cartel, if U.S. buyers actually recovered treble damages, this alone would have amounted to about 45% of the global monopoly profits made by this cartel. Should

Respondents be permitted to proceed, private recovery could amount to 300% of global damages instead of 45%. Clearly the question of standing can mightily affect the ability of private antitrust actions to deter international price fixing.

Because of various practical impediments, private plaintiffs have rarely if ever attained treble damages. Historically, what has been observed for domestic price-fixing cases is that direct purchasers have recouped on average less than single damages. See Lande, "Are Antitrust 'Treble' Damages Really Single Damages?," 54 *Ohio State L. J.* 115, 171 (1993).[21] The recovery rate for contemporary international cartels is also below single damages; only three examples could be found of settlements above single damages, and none as high as double damages. Private International Cartels App. Table 6B at 129-31.[22] However, if wholly foreign direct buyers were to be permitted to bring treble-damage suits in U.S. courts, recoveries at historical rates would push total private recoveries to an average of about 75% of global overcharges.[23] Combined with fines,

[21] Recovery by indirect purchasers is available to residents of less than half of the States. Settlement amounts in indirect purchaser suits against vitamins defendants are difficult to document because most terms are confidential, but are believed to be well under single damages in all cases, typically a small percentage of damages. Indirect-purchaser suits of international cartels prosecuted by coalitions of state attorneys-general are of a similar order of magnitude. In 2001 a coalition of state attorneys general negotiated a record $255 million settlement for sales to indirect purchasers with the six leading vitamins cartel defendants, less than 4% of global injuries. See "Ryan Announces Historic $255 Million Antitrust Settlements Against International Vitamin Cartel," PR Newswire, October 10, 2000.

[22] The median ratio of settlement payouts to overcharges is 76%. Private International Cartels 59 (Table 20).

[23] Information on legal costs for defendants is scanty. In one well documented case (ADM lysine), legal cost amounted to 9% of its total antitrust payouts. Global Price Fixing 536.



these expanded private damages could approach optimal deterrence.

In sum, the maximum financial antitrust liability that would face global cartels in the absence of affirmance here would be, *de jure*, the sum of (1) five to six times the harm generated in the United States, (2) approximately single U.S. damages in the European Union, and (3) negligible fines or penalties elsewhere. As noted above, the injuries caused by global cartels spread beyond North America and Western Europe. Therefore, as a proportion of the monopoly profits garnered worldwide, the theoretical upper limit of lawful antitrust liability would be limited to approximately double global damages. *De facto* the application of fines and private suits to global cartels has resulted in total monetary sanctions that have been less than double actual global damages in all cases and less than single damages on average. In the end, then, even international cartels that are uncovered and prosecuted tend to be profitable. As explained below, such sanctions offer woefully suboptimal deterrence, but under the reading of the Sherman Act adopted below, deterrence might approach optimal levels.

## 5. THE VITAMINS CARTEL'S SANCTIONS.

The first source of monetary sanctions imposed upon the participants in the vitamins cartels were government fines, first imposed on the vitamins defendants by U.S. courts in a series of guilty pleas beginning in 1999. All who are likely to plead appear now to have done so, with a total of $907 million collected in criminal fines. Canada was next with criminal fines of $100 million paid. The EU imposed administrative fines of $759 million in 2001.[24] Australia ordered a fine of $14 million and South Korea $3 million. Private International Cartels 56. Japan and Switzerland

[24] These fines are under appeal and could be reduced, as they often are, by the Court of First Instance of the European Community.

issued warnings to members of the cartel, but no fines. While Brazil and other jurisdictions are investigating the vitamins cartel, no further major fines are expected to be imposed in this case.

The second major source of sanctions is private actions by direct buyers, principally in the United States. Several federal cases have been resolved, with a total to date of $596 million in recovery and legal fees and costs. The biggest gap in our knowledge of the amount of sanctions is the size of the settlements for opt-outs from the so-called domestic "all-vitamins" class action, *In re: Vitamins Antitrust Litigation*, Misc. No. 99-197 (D.D.C.). About 225 companies of the 4000 original class-action plaintiffs opted to litigate on their own. As these opt-outs represented more than 75% of class purchases, their settlements are likely to be substantial. Assuming that they will settle for a somewhat larger percentage of affected sales than those buyers that remained in the class, *amicus* Connor estimates the total payout to be in the range of $1200 to $2400 million. Similar civil actions are being litigated in Australia and Canada but are unlikely to result in large recoveries. In the EU and the rest of the world civil liability is negligible for-price fixing violations. Harding and Joshua, Regulating Cartels in Europe: A Study of Legal Control of Corporate Delinquency 236-239 (2003). While single damages are permitted in theory in a few European national courts, various practical impediments exist. Id.

To summarize, if foreign sales like those at issue in the instant case are not unlawful as a matter of American law, so that the Government must calculate base fines solely on the basis of domestic affected sales, then the maximum fine on international cartels by the United States, Canadian, and EU authorities will typically amount to less than double the damage caused by the cartel in the United States. Civil liability is confined almost entirely to the U.S. court system and is unlikely to exceed double these U.S. damages. If an



international cartel confined its sales solely to the U.S. market, its members might face the prospect of treble or quadruple damages, but few international cartels are configured this way.[25] Rather, sales and profits made in the U.S. market are typically less than one-third or one-fourth of the total. In such cases, fines and penalties in all jurisdictions will be less than global monopoly profits.

In the specific case of the vitamins cartel, the total antitrust fines and penalties are reckoned to be between $4.4 and $5.6 billion. But, as was shown above, the best estimates of the cartel's monopoly profits in all areas of the world are $9 to $13 billion. The criminal and civil justice systems of the globe thus have failed to recover more than half of the cartel's illegal profits.

**6. THE VITAMINS CARTEL IS NOT ATYPICAL.**

Most of the other international cartels of 1990s resemble the vitamins cartel in their operation, effectiveness, and sanctions imposed:[26]

- Vitamins are organic chemicals; 49 of the 167 products that were the subject of price-fixing cartels uncovered by authorities between January 1990 and July 2003 were in organic chemicals markets.
- The vitamins conspirators were almost all manufacturers; the great majority of global cartelists are manufacturers.
- One-fourth of all international cartels sold to dispersed customers in the food and agricultural industries; half of the bulk vitamins ended up in animal feeds.

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[25] Only 18 cases out of 167 modern international cartels were configured this way. Private International Cartels App. Table 3 at 115-120.

[26] These facts are drawn Private International Cartels, *passim*, and Global Price Fixing 277-318.

- The typical international cartel made less than half of its revenues in North America and the EU; so did the vitamins cartel.
- The median number of companies forming international cartels was five; the median number of companies involved in the vitamins cartel with respect to each product was three.
- More than 80% of international price fixers are headquartered in the EU or Japan; in vitamins it was 80%.
- No international cartel sold a differentiated consumer product; vitamins are unique chemicals sold to other manufacturers.
- In common with all other cartels, the vitamins cartel needed to combat the effects of international arbitrage on prices in high-prices regions.
- The mean duration of the vitamins cartel with respect to each product was 69 months; for all global cartels, 60 months; for all international cartels uncovered in 1996-1999, 75 months.
- The global financial antitrust penalties imposed on the vitamins conspirators was 31% to 58% of economic harm caused; for international cartels affecting 29 products, the mean was 55%.
- The total financial antitrust penalties imposed on the vitamins conspirators was 12% to 16% of affected sales; the mean ratio for international cartels affecting 65 products was 12%.

## 7. INTERNATIONAL CARTEL RECIDIVISM.

Several of the vitamins manufacturers have been fined previously for price-fixing violations under U.S. or EU competition law. Global Price Fixing 499-500. F. Hoffmann-LaRoche or its holding company Roche AG,



engaged in an overlapping price-fixing agreement with respect to 12 vitamin products. Roche, one of the two companies identified as the ringleaders of the vitamins cartel, was fined $14 million by the United States in 1997 for its leading role in the citric acid cartel of 1991-1995. Global Price Fixing 395. Roche executives were obligated to provide full cooperation in antitrust matters by virtue of Roche's guilty plea in the citric acid case, yet they continued to conspire on vitamins prices for two more years. Moreover, there was testimony given at trial in 1998 in *U.S. v. Andreas,* No. 96 CR 762 (N.D. Ill.), that F. Hoffman-LaRoche had been a member of another, clandestine international cartel in the citric acid market in the late 1980s. Global Price Fixing 136. Although a U.S. pharmaceutical company was allegedly a member, this earlier citric acid conspiracy was never uncovered by any antitrust authorities.[27] Thus, there is credible evidence that Roche is a true recidivist is the narrowest sense of the term.

Roche is not the only convicted member of the vitamins cartel to be fined for international price fixing in another line of business. The large French chemical manufacturer Rhône-Poulenc, which in 1999 merged with the leading German chemical firm Höchst to form Aventis, was subsequently given amnesty in 1999 by the European Commission for its role in the global conspiracy in the market for the amino acid methionine. Private International Cartels Table A.1. Höchst itself, which conspired with respect to vitamin B12, was convicted and fined $36 million

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[27] Unrebutted testimony in the same trial also revealed that two of the Japanese members of the global lysine cartel had thrice previously formed both international and domestic U.S. cartels in the lysine market. Connor, "'Our Customers Are Our Enemies:' The Lysine Cartel of 1992-1995," 18 *Review of Industrial Organization* 5, 6-7 (2001). Thus, two of the five lysine defendants convicted by the United States in 1996 had by that time fixed prices of lysine on *four separate occasions*.

by the United States in 1998 for its role in the global sorbates cartel; in 2003 the EU imposed a fine of $116 million on Höchst (by then Aventis) for the sorbates violation. Id. Thus, three of the co-conspirators in the vitamins cartels are known to have fixed prices in previous or concurrent international cartels that operated in the 1990s. Doubtless there are other instances of repeated violations of the antitrust laws by other members of the vast vitamins cartel that have not been discovered or publicly reported.

These three examples drawn for the vitamins case are neither isolated nor merely anecdotal. The phenomenon of repeated violations of the antitrust laws of the United States and the European Union has been the subject of scholarly examination. See Private International Cartels App. Table 5 at 124-125. This research collects information on international cartels involving 167 different products that were uncovered by one or more of the world's antitrust authorities between January 1990 and July 2003. These data are believed to be reasonably complete. Out of the hundreds of companies identified as participants in these cartels, more than 50 companies participated in contemporary cartels with respect to two or more of these products. Id.[28] Five companies are known to have participated in price-fixing cartels with respect to ten or more products, and 13 in cartels with respect to five or more. There are a few instances of true recidivism, but most of the cases just mentioned are matters of companies colluding in overlapping agreements with respect to multiple product lines. For example, the Dutch chemical maker Akzo Nobel engaged in international price-fixing agreements concerning ten product lines: choline chloride (vitamin B4), sodium gluconate, MCAA, soda ash, explosives, auto paints, organic peroxides, PVC

[28] Some of these companies were also convicted or fined as members of purely domestic cartels or of international cartels that were active in periods prior to 1990. Thus, these data on repeated participation are undercounts.



additives, rubber processing chemicals, and MBS. Id. 124. Perhaps it is best to call such behavior serial price-fixing.

## 8. DETERRING INTERNATIONAL CARTELS.

The fact that so many companies engage in repeated violations of U.S. and EU competition laws is symptomatic of deeply rooted business behavior. The roots of price-fixing conduct lie in the structures of markets. See, *e.g.*, Global Price Fixing 522-527; Private International Cartels 8-11. Common to all discovered cartels is "small numbers" (a high degree of industrial concentration of ownership among sellers) coupled with a high degree of control of the market by members of the cartel. Similarly, cartels are more effective when buyers are many and none purchase large shares of the cartelized product. A third nearly universal feature of markets with cartel activity is that the products are standardized commodities with few or no substitutes even when a cartel raises its price to a level well above normal. Storable products that are cheaply transported long distances make better candidates for internationally collusive schemes than perishable items.[29]

The vitamins cartel illustrates the importance of these market characteristics. Global market concentration was high (the top four or five firms accounted for more than 75% of production), the cartel members comprised the top tier of manufacturers, more than ten thousand companies purchased bulk vitamins directly from the cartel, the biological functions of vitamins insured their uniqueness in demand, and high vitamin prices permitted long-distance trade.

[29] The members of the lysine cartel for example were convicted for their price agreements in the dry lysine market. Liquid lysine, which sold for less than $0.50 per pound and could not be transported economically by tanker vehicles more than a few hundred miles from the plants in which it was made was not subject to direct price manipulation by the cartel.

Beyond these three characteristics are a number of market features that generally facilitate overt collusion but that may not be necessary conditions. Cartelized markets tend to be mature; growth tends to be steady and predictable; rapid changes in product design or in methods of manufacture tend to be things in the past.[30] Transactions are typically made through private bilateral negotiations that are not directly observable to third parties, and most sales are made by means of long term supply contracts. Terms of sale (delivery services, quantity discounts, rebates, recognized grades, quality premiums, etc.) have long been standardized throughout the industry. Leading companies may have had years of strategic interaction with one another. Barriers to entry are formidable, thus severely limiting the number of potential entrants should prices rise significantly. Again, the markets for bulk vitamins by and large display these facilitating factors.

Such a mix of market characteristics is found in only a minority of the world's industries. The structures and practices in the manufacturing and mining industries foster cartelization, whereas the organization of retail sales of manufactures does not. Manufacturing of organic chemicals embodies them, while production of inorganic chemicals does not.

The import of these observations is that collusion is rational in some industries but foolhardy in others. By calling collusion "rational" economists intend to characterize cooperative business choices that are expected to generate greater profits than alternative strategies. See generally Polinsky and Shavell, "The Economic Theory of Public

[30] Cartel formation is frequently, perhaps usually preceded by an actual or impending "crisis" (as perceived by cartel members): markedly slowing growth, falling prices, rising inventories, low rates of capacity utilization or similar conditions that have caused or are about to cause profits to decline to what are by the standards of the industry historically low rates.



Enforcement of the Law," 38 *J. Economic Literature* 45 (2000); Posner, Antitrust Law 266-274 (2d ed. 2001). The field of legal economics that studies crime and punishment is founded on the idea that persons choose crime because the *anticipated benefits exceed the expected losses*. When the benefits (monopoly profits) exceed the losses (antitrust fines and penalties), deterrence will not be achieved.[31]

There are two major reasons why it is rational for firms contemplating global price fixing to proceed. First, *actual* cartel profits have historically exceeded the financial penalties meted out by the world's courts and commissions. It is reasonable to suppose that *future expectations* about the benefit/cost ratio of international price fixing will be tempered by historical experience. As this brief has demonstrated, the total collusive overcharges imposed by the vitamins cartel greatly exceeded the global fines and penalties extracted from the cartelists. This result follows from the leniency policies of the most active anticartel authorities, from the difficulties of plaintiffs in U.S. civil suits in achieving double or even single damages, from the absence of civil suits abroad, and from the near absence of any kind of enforcement outside North America and the EU.[32] The facts regarding anticartel sanctions presented above support a similar conclusion in the case of other global cartels uncovered since 1990.

[31] When they are equal, deterrence is said to be optimal. Optimal deterrence theory usually assumes that the government has no residual uncertainty and that would-be corporate criminals are risk-neutral. If a corporation is instead risk-avoiding, the optimal punishment level for the same level of anticipated benefits will be lower.

[32] Of course some cartels are uncovered and sued only by private parties, but the reverse is by far the most common pattern. Once one antitrust authority is alerted to the existence of a cartel, these days the others will soon know.

Second, global cartelists have reason to expect that their secret price fixing will probably remain hidden. The probability of being apprehended by one or more of the world's antitrust authorities is not known with certainty, but it is certainly less than 100%. The most reliable sources assert that the probability of any kind of private cartel being caught before the agreement is dissolved for other reasons is in the range of 10% to 33%. See Private International Cartels 63 (collecting sources).[33] It is true that most of these estimates date from periods before the full force of today's U.S. criminal sanctions and leniency inducements were felt. Nevertheless, there is little reason to believe that the true probability of detection is outside this range.[34]

Even if corporate antitrust fines and penalties were to be applied in Europe and North America at their maximum levels, the low probability of detection alone may still result in suboptimal deterrence. When one also considers the application of leniency policies in the negotiation of fines, the absence of criminal enforcement outside of two continents, and the inability of injured parties to seek civil restitution outside of North America, the profitability of global price fixing is assured. An approach such as that taken by the court below is necessary if the enforcement of American law is to have any realistic hope of protecting American consumers and the American economy by approaching optimal levels of deterrence of anticompetitive behavior by international price-fixing cartels.

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[33] The legal-economic literature on this point is scanty. Seven sources are cited on the page cited in the text. The only empirical economic study finds a 13% to 17% discovery rate. Even after detection, successful prosecution of objectively guilty international conspiracies is uncertain.

[34] Polinsky and Shavell note that arrest rates for the most common felonious property crimes are between 13% and 17%. Polinsky and Shavell, "The Economic Theory of Public Enforcement of the Law," 38 J. *Econ. Lit.* 45, 71 n. 77 (2000).



## PRINCIPAL CONCLUSIONS

Modern international cartels with global reach present a knotty challenge to current antitrust enforcement practices.

Cartels that sell internationally tradable commodities and that aim to fix prices in two or more regions with different national currencies cannot control currency exchange rates. As a consequence, private international cartels must prevent geographic arbitrage through frequent realignment of national prices if their control over price is to succeed. The vitamins cartels and scores of the largest cartels uncovered by antitrust authorities since 1990 embody these characteristics, and direct evidence exists that cartel managers in fact were aware that unchecked arbitrage would undermine their scheme. Therefore, the purchases of wholly foreign buyers play an integral role in creating the antitrust injury incurred by wholly domestic direct purchasers.

Even under ideal prosecutorial outcomes, in the absence of affirmance of the decision below, the global reach of modern cartels insures that the monetary payouts of guilty international cartelists cannot succeed in disgorging all the illegal cartel profits. That is, the imposition of maximum government fines combined with fully successful civil suits in North America will inevitably result in amounts less than single global damages. It would therefore be utterly rational for would-be cartelist to form or join an international price-fixing conspiracy. Only if treble damages are available to wholly foreign buyers might the balance tip: if plaintiffs like Respondents are successful in American courts, the monetary penalties imposed on prosecuted members of cartels could, at least in theory, in most cases exceed the monopoly profits. Cartel formation will be discouraged.

Even assuming prosecutorial conditions will resemble recent historical patterns of punishment, a judgment of affirmance will greatly improve international cartel

deterrence and will lead it to approach optimal deterrence. The precise degree of deterrence will depend on the perceived probability that international cartels will be detected, investigated, and convicted. It is widely believed that the probability of detecting clandestine cartels is less than one-third. The degree of deterrence will also depend on the proportion of the price-fixing overcharges awarded to plaintiffs in civil suits, which on average has been less than 100% and in individual cases never exceeds double damages. If these estimates are correct and conditions remain unchanged, permitting wholly foreign buyers to seek redress for antitrust injury in U.S. courts, will mean that typical would-be cartelists will face, if not an optimal level of deterrence, the likelihood of a much smaller degree of underdeterrence than exists today.

Respectfully submitted,

STEVEN O. SIDENER
GOLD BENNETT CERA & SIDENER LLP
595 Market Street, Suite 2300
San Francisco, CA 94105
(415) 777-2230

PETER J. RUBIN
*Counsel of Record*
Georgetown Univ. Law Center
600 New Jersey Ave., NW
Washington, DC 20001
(202) 662-9388

*Counsel for Amici Curiae*

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